

Trends and Patterns in Cesarean Section Rates in Rhode Island

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Over the past decades, high rates of cesarean section deliveries have been a concern both at the national and state level. During the late 1980's and early 1990's, the rate of cesarean section deliveries in Rhode Island decreased and appeared to be heading for the national target of 15% by 2000.¹ During this time, vaginal births after cesarean section deliveries (VBACs) were encouraged. However, the downward trend in c-section rates reversed in 1995 and in Rhode Island, the c-section rate rose to a high of 28.8% in 2004, the highest rate reported for the state. Currently, more than one out of four babies born in Rhode Island are delivered by cesarean section.

Methods. Cesarean section rates for Rhode Island were calculated using information on the method of delivery reported on the Rhode Island birth certificate, including whether the delivery was a primary or first-time cesarean delivery, a repeat cesarean delivery or a VBAC. The overall cesarean section rate was defined as the number of cesarean deliveries, primary and repeat, per 100 births. The primary cesarean rate was defined as the number of primary cesarean deliveries divided by the total number of deliveries minus the number of previous cesarean deliveries (including VBACs). The repeat cesarean rate was defined as the number of repeat cesarean deliveries divided by the total number of repeat cesarean deliveries and VBACs. Because of concerns about the completeness of VBAC data on the birth certificate, the VBAC rate was reported from the state's Hospital Discharge Database.² The VBAC rate was defined as the number of VBACs divided by the total number of repeat cesarean deliveries and VBACs.

Comparative data for the United States were taken from a published source.³

Results. *Overall Trends.* In 1986, the cesarean section rate in Rhode Island had risen to 23.8%, but by 1994, this figure had dropped to a low of 17.3%. In 2004, 3,681 (28.8%) of the 12,778 births among Rhode Island residents were by cesarean section. Between 1990 and 2004, the overall cesarean section rate in Rhode Island increased by 57.4%, from 18.3 to 28.8. (Figure 1) Although c-section rates among Rhode Islanders had been lower than national rates during the 1990's,

by 2003, the Rhode Island rate (28.2) had surpassed the nation (27.5) (Figure 1). Increases in c-section rates during 1990-2003, were more pronounced in Rhode Island compared to the nation. While the c-section rate rose by 21.1% in the nation, the rate in Rhode Island rose by 54.1%.

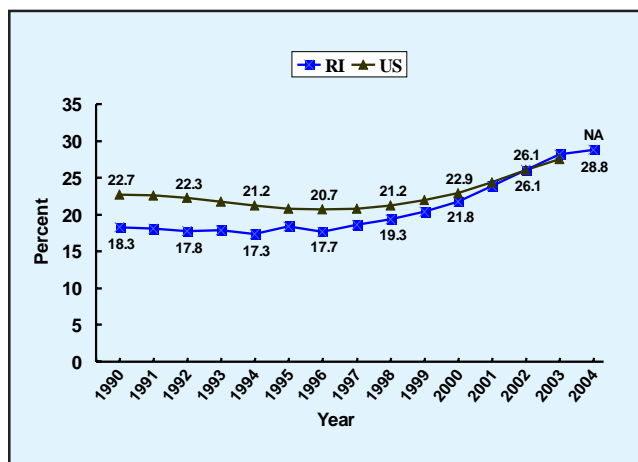


Figure 1. Overall Cesarean Section Rates, United States and Rhode Island, 1990-2004.

Primary and Repeat Cesarean Sections. During 1990-2004, the primary c-section rate among Rhode Islanders rose more sharply than the overall rate, from 12.1 in 1990 to 21.1 in 2004, a 74.4% increase. (Figure 2) In 1990, 71.7% of births to women with previous c-sections were by repeat c-section, and by 2004, this rate increased to 83.6%. However, during 1990 and 1994, the repeat rate decreased by less than a quarter, but then increased by 53.1% between 1994 and 2004.

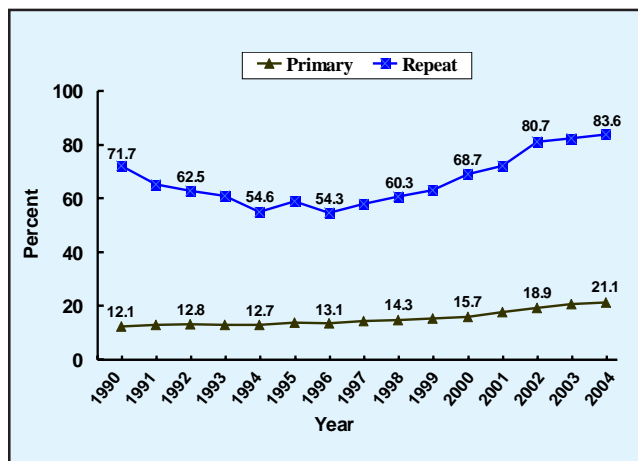


Figure 2. Primary and Repeat Cesarean Section Rates, Rhode Island, 1990-2004.

Health by Numbers

VBACs. The percentage of births that were VBACs decreased from 28.3% in 1990 to 16.4% in 2004. Contrary to the trend seen for repeat sections, the VBAC rate increased by 60.4% during 1990-1994, but then decreased by 63.9% 1994-2004.

Maternal and Infant Characteristics. Disparities in c-section rates also exist among racial/ethnic groups and vary by maternal age, education, marital status, insurance and geographical area of residence. During 2004, Whites had the highest c-section rate (29.3%) while Asians had the lowest (24.1%). (Figure 3)

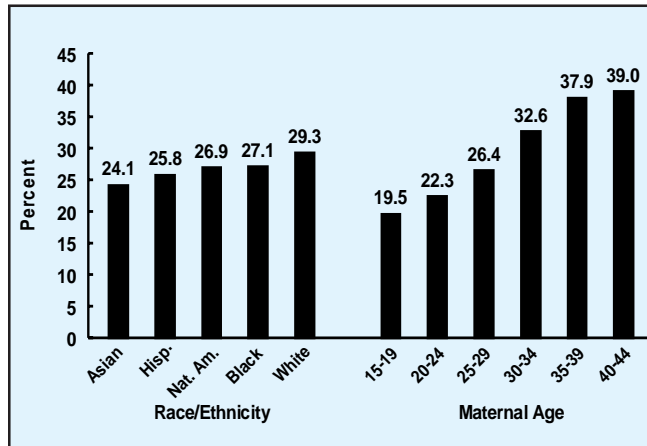


Figure 3. Cesarean Section Rates by Race/Ethnicity and Age, Rhode Island, 2004.

C-section rates rise with women's age. In 2004, women aged 40-44 (39.0%) were twice as likely to have a c-section as teens aged 15-19 (19.5%). (Figure 3) However, between 2000 and 2004, the rate among teens rose by 53.5% compared to 17.8% among women aged 40-44.

Although in 2004, women with less than a high school education (< 12th grade) had lower c-section rates (23.3%) than women with higher educational levels (29.9%), c-section rates among women with less than a high school education grew more sharply. Between 2000 and 2004 c-section rates among women with less than a high school education increased by 42.9% compared to 30.6% among women with higher educational levels.

During 2004, married women were more likely to have a c-section (31.2%) than single women (24.9%). Higher c-section rates were seen among women with private insurance (30.9%) than among women with public (Medicaid/RIte Care) health insurance (26.0%). Women who resided in the core cities were less likely to have a c-section (26.5%) than women who lived in the rest of the state (30.8%). Women who had multiple gestation births (i.e., twins and triplets) were approximately 2.5 times more likely to have a c-section (67.7%) compared to women who delivered a singleton birth (27.2%). Low birth weight was also a risk factor for c-section, where 62.4% of very low birth weight babies (<1500 grams) were delivered by c-section compared to 27.3% of normal birth weight babies (≥2,500 grams). (Figure 4)

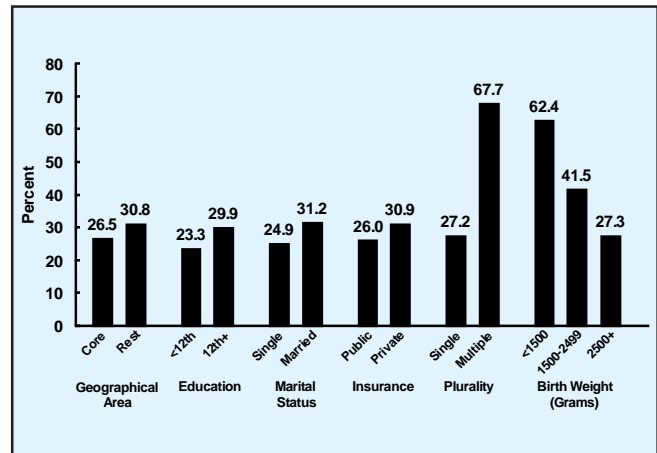


Figure 4. Cesarean Section Rates by Other Maternal and Infant Characteristics, Rhode Island, 2004.

Discussion. Cesarean section rates have risen in Rhode Island and the nation for the past decade. Primary and repeat rates have risen to their highest levels, and VBACs are at their lowest. Cesarean rates in Rhode Island have increased across all races and ages. Women are more likely to have cesarean deliveries if they are older, have multiple births or low birth weight babies. Contributing factors to the rise in c-section rates include increases in maternal age (delays in childbearing), increases in multiple births, and changes in policies or guidelines. The decrease in VBACs may be due to fear of malpractice lawsuits and changing opinions on their safety (e.g., uterine rupture).

Although cesarean delivery versus vaginal delivery must be determined at the individual level, there is disagreement as to the appropriate rate of cesarean deliveries overall. Specifically, there is a lack of consensus regarding elective cesarean deliveries, the safety of VBACs and the risks and benefits of vaginal delivery.³ In the face of these uncertainties, it is doubtful that Cesarean section rates will return to the low levels achieved in the previous decade.

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